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(21) Application number: 08308780

(71) Applicant: SKY ALUM CO LTD

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(72) Inventor: TAJIRI AKIRA

(54) DRAWING AND IRONING METHOD

(57) Abstract:

PROBLEM TO BE SOLVED: To prevent the generation of galling in the drawing and ironing of the manufacture of an aluminum DI can or the like and in particular to surely prevent the generation of galling even in not only an alloy other than 3004 alloy and a DC material but also a CC material.

SOLUTION: The die, whose base material is coated with

a hard thin film of  $\leq$ Hv 2500 and moreover whose surface roughness is  $\leq$ Ra 0.05 $\mu$ m, is used as the die for the ironing pass of at least the final stage in ironing. Especially, a diamond-like carbon film (DLC film) is used as the hard thin film. Also, the thickness is specified to be within the range of 0.5-2.5 $\mu$ m. Further, the hardness of the die base material is specified to be  $\leq$ HRc 58.

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AB - J10137861 The method involves using a dice containing suitable base material. A thin film with Vickers hardness of about 2500 or more, covers the dice base material. The surface roughness (Ra) of the thin film is about 0.05 micrometer or less. A diamond like carbon film with thickness of 0.5-2.5 micrometer is used as the thin film.

- ADVANTAGE - Prevents generation of galling. Ensures continuous casting rolling.

- (Dwg.1/4)

IW - APERTURE IRONING METHOD TWO PIECE ALUMINIUM CAN MANUFACTURE DICE COVER  
HARD THIN FILM SUIT VICKERS HARD SURFACE ROUGH

IKW - APERTURE IRONING METHOD TWO PIECE ALUMINIUM CAN MANUFACTURE DICE COVER  
HARD THIN FILM SUIT VICKERS HARD SURFACE ROUGH

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PAW - (SKYA ) SKY ALUMINIUM CO LTD

TI - Aperture ironing method for two piece aluminium can manufacture -  
involves using dice covered with hard thin film which has suitable  
Vickers hardness and surface roughness